

Chromium Plating and Polish Draft Upland Site Summary

CHROMIUM PLATING AND POLISH (DAR SITE ID #108)

Address: 373 Wythe Avenue, Brooklyn, New York
Tax Lot Parcel(s): Brooklyn Block 2442, Lot 1
Latitude: 40.712187
Longitude: -73.965619
Regulatory Programs/
Numbers/Codes: NYSDEC Spill No. 8801453, 35 separate NYSDEP NOV, USEPA
ID No. NYD041975715, PBS No. 2-095214
Analytical Data Status: Electronic Data Available Hardcopies only
 No Data Available

1 SUMMARY OF CONSTITUENTS OF POTENTIAL CONCERN (COPCs) TRANSPORT PATHWAYS TO THE CREEK

The current understanding of the transport mechanisms of COPCs from the upland portions of the Chromium Plating and Polish site (site) to Newtown Creek is summarized in this section and Table 1 and supported in the following sections.

Overland Transport

This site is located 1.5 miles from Newtown Creek and associated waterways. This is not a complete current or historical pathway.

Bank Erosion

This site is not adjacent to Newtown Creek and associated waterways. This is not a complete current or historical pathway.

Groundwater

The site is located approximately 1.5 miles from Newtown Creek and associated waterways and 0.2 mile from the East River. Information regarding on-site groundwater investigations was not identified in documents available for review. Regional studies indicate that groundwater from this site discharges to the East River (Misut and Monti 1999). This is not a complete current or historical pathway.

Overwater Activities

The site is not adjacent to Newtown Creek and associated waterways. Information regarding overwater activities was not identified in documents available for review. This is not a complete current or historical pathway.

Stormwater/Wastewater Systems

Information available for review did not discuss stormwater or wastewater management practices prior to 1985. An industrial wastewater discharge (IWD) permit was issued for the site (NYCDEP 2003); however, this permit has expired. This site is within the Newtown Creek Water Pollution Control Plant (WPCP) sewershed (NYCDEP 2007). Wastewater and stormwater from the site flow to the sewer system and discharge to the East River via combined sewer overflow (CSO) Outfall NC-012. Sewer/CSO discharge and direct discharge of stormwater and wastewater are not a complete current or historical pathways.

Air Releases

Information related to air discharges at this site is limited to one air pollution complaint from 1988 (NYCDEP 1988). Further information regarding air emissions from the site was not identified in documents available for review. There is insufficient evidence to make a current or historical pathway determination.

2 PROJECT STATUS

Information regarding on-site environmental investigations was not identified in documents available for review. A New York State Department of Environmental Conservation (NYSDEC) Site Code was not found for this site.

3 SITE OWNERSHIP HISTORY

Respondent Member:

Yes No

Owner	Years	Occupant	Types of Operations
Jeanette Sherkin & Blanche Goldberg	Unknown – 1967	Unknown	circa 1950 lacquer spraying (on part of site)
MRM Properties Corporation.	1967 – 1969	Chromium Plating and Polish (company dissolves 2005)	Nickel and chromium plating, polishing, coating electro cleaning and acid/alkaline cleaning
Mario Fichera, Jr.	1969		
Chromium Plating and Polish	1969 – 1985		
Robert Fichera and Mario Fichera, Jr.	1985 – 1986		
Mario Fichera	1986		
373 Wythe Realty, Inc.	1986 – 2009	Visual Display, Inc. (2004 – 2005)	Plating
Wythe Properties, LLC	2009 – present		Empty lot

4 PROPERTY DESCRIPTION

The property occupies approximately 1.1 acres. It is approximately 1.5 miles from Newtown Creek and associated waterways and 0.2 mile east of the East River. The site slopes down from approximately 41 feet above mean sea level on the eastern boundary to approximately 37 feet above mean sea level on the western boundary, and the slope continues down toward the East River (see Figure 1). Based on the aerial photograph in Figure 1, the site has been razed and no new buildings have been erected.

There are multi-story buildings adjacent on the north and east sides, and city streets border the property to the south and west. The area is zoned manufacturing and the surrounding area is a mix of residential, commercial, and park areas (NYCDCP 2011).

5 CURRENT SITE USE

The site is currently unoccupied.

6 SITE USE HISTORY

A 1950 Sanborn map showed sheds at the corner of Wythe Avenue and South 5th Street at 373 Wythe Avenue and indicated a lacquer spraying facility existed at 367 Wythe Avenue (Sanborn, 1950).

Chromium Plating and Polish began operations at 373 Wythe Avenue sometime after 1967 (Sherkin 1967). It performed nickel and chromium plating, polishing, and coating (NYCDEP 1988).

Chromium Plating and Polish ceased operations on December 15, 2004. Visual Display, Inc. continued operations in a limited capacity and ceased plating in June 2005 (Visual Display, Inc. 2005). The site had contained a one-story commercial building. In 2008, a developer planned a high-rise residential building, but currently the lot is empty and for sale (Brownstoner.com 2008; Google Maps 2011).

7 CURRENT AND HISTORICAL AREAS OF CONCERN AND COPCs

The current understanding of the historical and current potential upland and overwater areas of concern at the site is summarized in Table 1. The following sections provide a brief discussion of the potential sources and COPCs at the site requiring additional discussion.

Potential areas of concern at the site include areas in which plating and polishing occurred, as well as the former tanks and processing equipment for the plating operations, on-site fuel tanks, and generated wastewaters that were discharged to the sewer system. COPCs associated with these areas of concern include total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs) and metals.

7.1 Uplands

There was no documentation available in the material reviewed while preparing this summary regarding the lacquer spraying facility that occupied the site prior to 1967. From 1980 to 2006, the site was classified by U.S. Environmental Protection Agency (USEPA) as a Resource Conservation and Recovery Act (RCRA) Large Quantity Generator (USEPA ID No. NYD041975715), except in 2004 when it was classified as a RCRA Small Quantity Generator. Manifests for wastes shipped off site indicate materials identified as corrosive (waste code D002), wastewater treatment sludge from electroplating processes (waste code F006), plating bath solutions containing spent cyanide (waste code F007), and ignitable wastes (waste code D001). The COPCs for these sources include metals and petroleum hydrocarbons.

A 1970 inventory of the former tanks and equipment is included as Attachments 1a and 1b, and two schematics of the site (dates unknown) are included as Attachments 2 and 3. One 5,000-gallon aboveground storage tank (AST) in a subterranean vault with access was identified as on site for No. 2 fuel oil storage according to Petroleum Bulk Storage (PBS) No. 2-095214. It was installed on May 1, 1970 and removed on June 25, 2007.

7.2 Overwater Activities

This site is not adjacent to Newtown Creek or associated waterways. Information regarding overwater activities was not identified in documents available for review.

7.3 Spills

Documented spills at the site are summarized as follows (EDR 2010):

NYSDEC Spill No.	Spill Date	Close Date	Material Spilled	Remarks
8801453	05/17/88	03/04/94	No. 2 Fuel Oil	Undeterminable amount of fuel oil was spilled after employees noticed they could not maintain level in stand pipe. Groundwater affected. The EDR states that the tank was repaired, retested, and passed in October 1988.

Notes:

EDR – Environmental Data Resources, Inc.

NYSDEC – New York State Department of Environmental Conservation

8 PHYSICAL SITE SETTING

Site-specific hydrogeologic information was not identified in documents available for review. The geologic setting for Newtown Creek consists of impermeable Precambrian and Paleozoic crystalline bedrock, overlain by the Upper Cretaceous Raritan formation, Magothy formation and Matawan Group (undifferentiated), unconsolidated Pleistocene deposits and upper Pleistocene glacial deposits and Holocene shore, beach salt-marsh deposits, and alluvium, along with local occurrences of artificial fill (Buxton et al. 1981; Soren and

Simmons 1987). The primary areas of groundwater discharge are Newtown Creek and its tributaries and the East River (Misut and Monti 1999). In the vicinity of Newtown Creek, groundwater flow in the Upper Glacial aquifer is generally north and south towards the creek. With increased distance from the creek, groundwater will flow towards the nearest surface water body to discharge (Misut and Monti 1999). Incidences of perched groundwater may occur above the Upper Glacial Aquifer in some areas, particularly in formerly low-lying areas that have been filled. Groundwater flow at a specific property may differ from the regional pattern due to pumping for groundwater treatment or dewatering activities (Misut and Monti 1999), the presence of buried utilities, or other preferential pathways.

9 NATURE AND EXTENT (CURRENT UNDERSTANDING OF ENVIRONMENTAL CONDITIONS)

9.1 Soil

Soil Investigations

Yes No

Bank Samples

Yes No Not Applicable

Soil-Vapor Investigations

Yes No

Information regarding on-site soil investigations was not identified in documents available for review.

9.2 Groundwater

Groundwater Investigations

Yes No

NAPL Presence (Historical and Current)

Yes No

Dissolved COPC Plumes

Yes No

Visual Seep Sample Data

Yes No Not Applicable

Information regarding on-site groundwater investigations was not identified in documents available for review. Documents reviewed contained information that an on-site holding tank containing No. 2 Fuel Oil has an associated documented spill that affected groundwater (NYSDEC 2011a). The spill was closed by NYSDEC on March 3, 1994, but no sampling was conducted.

9.3 Surface Water

Surface Water Investigation	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
SPDES Permit (Current or Past)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Industrial Wastewater Discharge Permit (Current or Past)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Stormwater Data	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Catch Basin Solids Data	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Wastewater Data	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

9.3.1 Stormwater and Wastewater Systems

This site is located within the Newtown Creek WPCP sewershed. Stormwater and wastewater discharges from the site flow into a combined municipal sewer system. When the combined flows exceed the system's capacity, untreated CSOs are discharged to the East River (NYCDEP 2007).

9.3.2 Industrial Wastewater Discharge Permit

The information available shows the IWD Permit No. 03-P47-1 was, at a minimum, in effect from 1994 to the closing of the facility in 2005 (NYSDEC 2011b; NYCDEP 2003, 2001). According to the permit, there were two permitted discharge points located at the site: a 4-inch diameter riser from an effluent pipe, located in a pit below the floor level; and a 6-inch diameter housetrap, located in a pit below the floor level.

As described in Section 3, chromium plating and polishing operations began at this site in 1967. In the material reviewed for this summary, no information regarding the treatment and disposal of wastewaters generated at the site was found prior to approximately 1988. In 1988, it was noted that chromium plating and polishing at the site took wastewaters from the plating process and sent them to a reverse osmosis treatment system to separate leftover nickel from the plating process from wastewater. Collected nickel concentrate from wastewater was returned to nickel storage tanks and the wastewater was sent back to the last rinse in the nickel line. An ion exchange unit was added to the wastewater system prior to discharging to the sewer to prevent any residual nickel contamination (Fichera 1988). Additional treatment of wastewaters included a sludge accumulator tank with three dewatering drains, which dewatered sludge before it entered the filter process. The

dewatering drains moved water into a tank where the pH was adjusted and then used in the next process (CPP 2000).

All the rinse wastewater from the chromium plating operations went into chromium reduction tanks where the chromium was reduced before it was mixed with other wastewater. This pretreatment system was made up of filtration, pH monitoring, chromium reduction, heavy metal precipitation, and pH neutralization (NYCDEP 2004). The neutralizing system handled 2,500 gallons per hour of generated waste (CPP [date unknown]).

The most recent permit is described at length in the following table.

Permit Type	Permit Number	Effective Date	Outfalls ¹	Volume	Frequency-Parameters																																	
Industrial Wastewater Discharge Permit	03-P47-1	December 19, 2003	Discharge Point E1: A 4-inch diameter riser from an effluent pipe, located in an 101-inch by 115-inch by 45-inch pit, situated 64 inches from the interior wall facing South 5th Street and 1095 inches from the exterior wall facing Berry Street.	Unknown	<p>The process wastewater discharge from point E1 is covered by the Federal Metal Finishing Point Source Category, 40 CFR Part 433, and shall not exceed these categorical standards:</p> <table border="1"> <thead> <tr> <th colspan="3">Federal Categorical Standards (40 CFR § 433.17 (a))</th> </tr> <tr> <th>Pollutant</th> <th>Daily Maximum (mg/L)</th> <th>Maximum Monthly Average (mg/L)</th> </tr> </thead> <tbody> <tr> <td>Cadmium</td> <td>0.11</td> <td>0.07</td> </tr> <tr> <td>Chromium (Total)</td> <td>2.77</td> <td>1.71</td> </tr> <tr> <td>Copper</td> <td>3.38</td> <td>2.07</td> </tr> <tr> <td>Lead</td> <td>0.69</td> <td>0.43</td> </tr> <tr> <td>Nickel</td> <td>3.98</td> <td>2.38</td> </tr> <tr> <td>Silver</td> <td>0.43</td> <td>0.24</td> </tr> <tr> <td>Zinc</td> <td>2.61</td> <td>1.48</td> </tr> <tr> <td>Cyanide (Total)</td> <td>1.20</td> <td>0.65</td> </tr> <tr> <td>Total Toxic Organics (TTO)²</td> <td>2.13</td> <td>--</td> </tr> </tbody> </table>	Federal Categorical Standards (40 CFR § 433.17 (a))			Pollutant	Daily Maximum (mg/L)	Maximum Monthly Average (mg/L)	Cadmium	0.11	0.07	Chromium (Total)	2.77	1.71	Copper	3.38	2.07	Lead	0.69	0.43	Nickel	3.98	2.38	Silver	0.43	0.24	Zinc	2.61	1.48	Cyanide (Total)	1.20	0.65	Total Toxic Organics (TTO) ²	2.13	--
Federal Categorical Standards (40 CFR § 433.17 (a))																																						
Pollutant	Daily Maximum (mg/L)	Maximum Monthly Average (mg/L)																																				
Cadmium	0.11	0.07																																				
Chromium (Total)	2.77	1.71																																				
Copper	3.38	2.07																																				
Lead	0.69	0.43																																				
Nickel	3.98	2.38																																				
Silver	0.43	0.24																																				
Zinc	2.61	1.48																																				
Cyanide (Total)	1.20	0.65																																				
Total Toxic Organics (TTO) ²	2.13	--																																				

Industrial Wastewater Discharge Permit	03-P47-1	December 19, 2003	Discharge Point M1: A 6-inch diameter housetrap, located in a 36 -inch by 36-inch by 86-inch pit 86 inches below the floor level, situated 54 inches from the exterior wall facing South 5th Street and 608 inches from the interior wall facing Wythe Avenue.		<p>The discharge from points E1 & M1 shall not exceed the following New York City Sewer Use Limits:</p> <table border="1" data-bbox="1243 355 1896 1130"> <thead> <tr> <th colspan="3" data-bbox="1243 355 1896 428">Sewer Use Limits (15 R.C.N.Y. chapter 19)</th> </tr> <tr> <th data-bbox="1243 428 1430 602">Pollutant</th> <th data-bbox="1430 428 1667 602">Permissible Maximum Concentration For Any Given Time (mg/L)</th> <th data-bbox="1667 428 1896 602">Daily Average Maximum Concentration (mg/L)</th> </tr> </thead> <tbody> <tr> <td data-bbox="1243 602 1430 675">pH</td> <td data-bbox="1430 602 1667 675">5.0-11.0 Standard Units</td> <td data-bbox="1667 602 1896 675">--</td> </tr> <tr> <td data-bbox="1243 675 1430 711">Cadmium</td> <td data-bbox="1430 675 1667 711">2.0</td> <td data-bbox="1667 675 1896 711">0.69</td> </tr> <tr> <td data-bbox="1243 711 1430 784">Chromium (Hexavalent)</td> <td data-bbox="1430 711 1667 784">5.0</td> <td data-bbox="1667 711 1896 784">--</td> </tr> <tr> <td data-bbox="1243 784 1430 820">Copper</td> <td data-bbox="1430 784 1667 820">5.0</td> <td data-bbox="1667 784 1896 820">--</td> </tr> <tr> <td data-bbox="1243 820 1430 855">Lead</td> <td data-bbox="1430 820 1667 855">2.0</td> <td data-bbox="1667 820 1896 855">--</td> </tr> <tr> <td data-bbox="1243 855 1430 891">Mercury</td> <td data-bbox="1430 855 1667 891">0.05</td> <td data-bbox="1667 855 1896 891">--</td> </tr> <tr> <td data-bbox="1243 891 1430 927">Nickel</td> <td data-bbox="1430 891 1667 927">3.0</td> <td data-bbox="1667 891 1896 927">--</td> </tr> <tr> <td data-bbox="1243 927 1430 963">Zinc</td> <td data-bbox="1430 927 1667 963">5.0</td> <td data-bbox="1667 927 1896 963">--</td> </tr> <tr> <td data-bbox="1243 963 1430 1060">Cyanide (Amenable to Chlorination)</td> <td data-bbox="1430 963 1667 1060">0.2</td> <td data-bbox="1667 963 1896 1060">--</td> </tr> <tr> <td data-bbox="1243 1060 1430 1130">Non-Polar Material</td> <td data-bbox="1430 1060 1667 1130">50.0</td> <td data-bbox="1667 1060 1896 1130">--</td> </tr> </tbody> </table>	Sewer Use Limits (15 R.C.N.Y. chapter 19)			Pollutant	Permissible Maximum Concentration For Any Given Time (mg/L)	Daily Average Maximum Concentration (mg/L)	pH	5.0-11.0 Standard Units	--	Cadmium	2.0	0.69	Chromium (Hexavalent)	5.0	--	Copper	5.0	--	Lead	2.0	--	Mercury	0.05	--	Nickel	3.0	--	Zinc	5.0	--	Cyanide (Amenable to Chlorination)	0.2	--	Non-Polar Material	50.0	--
Sewer Use Limits (15 R.C.N.Y. chapter 19)																																									
Pollutant	Permissible Maximum Concentration For Any Given Time (mg/L)	Daily Average Maximum Concentration (mg/L)																																							
pH	5.0-11.0 Standard Units	--																																							
Cadmium	2.0	0.69																																							
Chromium (Hexavalent)	5.0	--																																							
Copper	5.0	--																																							
Lead	2.0	--																																							
Mercury	0.05	--																																							
Nickel	3.0	--																																							
Zinc	5.0	--																																							
Cyanide (Amenable to Chlorination)	0.2	--																																							
Non-Polar Material	50.0	--																																							

Notes:

1 – This site is within the Newtown Creek Sewershed.

2 – Defined in 40 C.F.R. § 433. 11 (e) as the sum of all quantifiable values greater than 0.01 milligrams per liter of the 111 toxic organic compounds listed in the IWD permit. Toxic organic compounds are comprised of two subcategories: volatile organic compounds (VOCs) and semi-volatile organic compounds. There are different sampling methods for each subcategory (see Part I, Sect. B. Monitoring Requirements).

CFR – Code of Federal Regulations

mg/L – milligram per liter

RCNY – Rules of the City of New York

The following table summarizes the violations of this permit that were available for review. Over the course of approximately 20 years of plating operations at the site, numerous instances of discharge violations were recorded and fines were issued by the New York City Department of Environmental Protection (NYCDEP).

Notice of Violation Number	Date of Offense	Chemical Species/Reason	Level (mg/L)	Permissible Level (mg/L)	Final Action	Final Action Date
E025 932 657	03/19/85	Nickel	579.5	3.0		
E025 932 648	03/21/85	Zinc	16.36	5.0	Dismissed	12/08/87
E04 8 840 029	01/11/88	Nickel	23	3.0		
E025 932 610					Dismissed	12/08/87
E025 932 620					Dismissed	12/08/87
E025 932 639					Dismissed	12/08/87
E04 8 843 181	02/16/89	Cyanide	32.5	0.2		
E04 8 843 190	02/21/89	Copper	23	5.0		
E04 8 843 154	02/22/89	Failure to comply				
E04 8 839 322	03/05/90	Hexavalent chromium	9,950	5.0		
E04 8 839 340	03/05/90	Nickel	2,811	3.0		
E04 8 839 350	03/05/90	Lead	26	2.0		
E07 0 642 761	04/28/92	Zinc	16	5.0		
E06 0 964 678	08/22/94	Nickel	183	3.0	Fine	\$500
E07 0 640 891	11/19/93	pH	3.68	5.0		
E07 2 175 904	01/03/95	Nickel	71	3.0	Fine	\$900
E07 6 988 075	09/24/94	Nickel	3.72	3.0		
E07 2 165 886	01/03/95	Hexavalent chromium	12.6	5.0		
E103 910 905	03/06/00	Hexavalent chromium	18	5.0	Fine	\$250
E103 910 960	07/10/00	Failure to comply with commissioner's order			Fine	\$250

Notice of Violation Number	Date of Offense	Chemical Species/Reason	Level (mg/L)	Permissible Level (mg/L)	Final Action	Final Action Date
E103 914 480	07/22/00	Nickel	23	5.0	Fine	\$750
E103 910 914	04/04/00	Nickel	10.0	5.0	Fine	\$350
E103 910 923	04/03/00	Nickel	13.0	5.0	Fine	\$350
E103 910 932	03/06/00	Nickel	8.1	5.0	Fine	\$350
E103 910 950	06/06/00	operational			Fine	\$350
E103 910 941	06/21/00	Failure to comply with commissioner's order			Fine	\$500
E120 065 647					Fine	\$350
E120 065 588					Fine	\$350
E123 575 073	01/23/02	pH	< 3	5.0	Fine	\$750
E133 826 890	03/12/04	Nickel	9.3	3.0	Fine	\$350
E133 531 561	07/22/04				Fine	\$250
E133 831 051	03/14/04				Fine	\$250
E133 832 326	07/14/04	Nickel	3.3	3.0	Fine	\$750
E133 837 092	09/04				Fine	\$750
E133 837 909	01/19/05	Nickel	3.38	3.0		
E133 845 782	04/11/05	Nickel	3.37	3.0		

Notes:

< – less than

mg/L – milligram per liter

The site was listed on New York City's Significant Noncompliance¹ List for the one year periods ending June 30, 1989, 1997, 1999, 2000, 2001, and 2002. This is not an exhaustive list because it reflects only the significant non-compliance lists presented in the annual Progress Reports on the NYCDEP Industrial Pretreatment Program (NYCDEP 1989, 1998, 2000a, 2000b, 2001, 2002).

9.3.3 Sampling Data

Multiple laboratory reports of wastewater sampling results from the site were available for review. One self monitoring report by Stablex-Reutter, Inc. in 1980 showed very high concentrations of total chromium (440 milligrams per liter [mg/L]), hexavalent chromium (360 mg/L), and nickel (410 mg/L), and may have occurred before the IWD Permit was issued (Stablex-Reutter, Inc., 1980). The remaining reports included analyses by the Industrial Wastes Control Section Laboratory of NYCDEP as well as outside testing laboratories (Group Research Corporation and Chemtech Consulting Group) to whom the site sent self-monitoring samples. These remaining reports span a period from 1988 to 2002, during which time the contaminant levels, especially of nickel and chromium, varied greatly.

The site also implemented several waste pretreatment steps during this period (Fichera 1988; CPP 2000). The following table summarizes the minimum and maximum reported concentrations for all of the laboratory reports. As this summary includes analyses done by the Industrial Wastes Control Section, there may be some overlap with the exceedances reported in the prior Notices of Violation table.

Constituent	Minimum	Maximum	Unit
Arsenic	0.000092	0.015	mg/L
Cadmium	<.00024	0.04	mg/L
Chromium, total	0.05	35	mg/L
Chromium, hexavalent	<0.002	12.6	mg/L
Copper	0.018	5.5	mg/L
Cyanide, total	<0.005	0.380	mg/L

¹ Significant noncompliance is defined in 40 CFR 403.8 (f) (2) (viii) (NYCDEP 2011b).

Constituent	Minimum	Maximum	Unit
Cyanide, amenable to chlorination	<0.005	0.380	mg/L
Lead	<0.005	0.49	mg/L
Mercury	<0.00006	0.00098	mg/L
Molybdenum	<0.0006	4.4	mg/L
Nickel	0.019	183	mg/L
Silver	<0.0015	10	mg/L
Zinc	<0.01	16	mg/L

Note:

< – less than

mg/L – milligram per liter

9.3.4 Surface Water Summary

Currently, stormwater at the site is expected to infiltrate into the ground or flow overland towards local storm drains and the East River. Wastewater generated on site is treated and then discharged to the NYCDEP sewer and when combined flows exceed the system's capacity, untreated CSOs are discharged to the East River at Outfall NC-012. The multiple exceedences cited in the notices of violation and high metal concentrations in the laboratory analyses indicate that the site was a likely a historical pollution source.

9.4 Sediment

Creek Sediment Data

Yes No Not Applicable

Information regarding sediment investigations was not identified in documents available for review.

9.5 Air

Air Permit

Yes No

Air Data

Yes No

Information related to air discharges at this site is limited to one air pollution complaint from 1988 (NYCDEP 1988).

10 REMEDIATION HISTORY (INTERIM REMEDIAL MEASURES AND OTHER CLEANUPS)

Information regarding on-site remedial activities was not identified in documents available for review.

11 BIBLIOGRAPHY/INFORMATION SOURCES

- Brownstoner.com, 2008. Blog post regarding Development Watch: 373 Wythe Avenue. Posted May 30, 2008. Accessed December 20, 2011. Available from: <http://www.brownstoner.com/blog/2008/05/development-wat-239/>
- Buxton et al. (Buxton, H.T., Soren, J., Posner, A., and Shernoff, P.K.), 1981. *Reconnaissance of the Groundwater Resources of Kings and Queens Counties, New York*. U.S. Department of the Interior, U.S. Geological Survey. Open-File Report 81-1186. 1981.
- CPP (Chromium Plating and Polishing), [date unknown]. Plant Schematic. Date unknown.
- CPP, 1990. Tabulation of Tanks and Equipment and Proposed Upgrades to Facility. April 27, 1990.
- CPP, 2000. City of New York Department of Environmental Protection, Bureau of Wastewater Pollution Control, Drainage Basin Monitoring Section, Grab Sampling Report. June 27, 2000.
- CPP, 2004. Reply to Commissioners Order #E24359. August 2, 2004.
- EDR (Environmental Data Resources, Inc.), 2010. EDR DataMap™ Environmental Atlas™ for “Newton Creek Queens, New York.” November 4, 2010.
- Fichera (Chromium Plating and Polishing), 1988. Letter to: Thomas Vetter, New York City Department of Environmental Protection. Regarding: Nickel System. June 9, 1988.
- Google maps, 2011. Online Mapping Application, 373 Wythe Avenue, Brooklyn, New York 11211. Accessed December 20, 2011. Available from: <http://maps.google.com/>
- Misut and Monti (Misut, P.E., and Monti, J. Jr.), 1999. *Simulation of Ground-Water Flow and Pumpage in Kings and Queens Counties, Long Island, New York*. U.S. Geological Survey. Water-Resources Investigations Report 98-4071. 1999.

- NYCDCP (New York City Department of City Planning), 2011. Map PLUTOTM Ed.11V2 Vector Digital Data. December 2011.
- NYCDEP (New York City Department of Environmental Protection), 1988. Interbureau Notification of Industrial Waste – Air Pollution Complaint. April 28, 1988.
- NYCDEP, 1989. *Seventh Progress Report, April 1 to September 30, 1989*. New York Department of Environmental Protection, Bureau of Wastewater Treatment, Industrial Pretreatment Program. October 19, 1989.
- NYCDEP, 1998. *1998 Annual Progress Report, January 1, 1998 to December 31, 1998*. New York City Department of Environmental Protection, Bureau of Wastewater Treatment, Industrial Pretreatment Program.
- NYCDEP, 2000a. *2000 Annual Progress Report, January 1, 2000 to December 31, 2000*. New York City Department of Environmental Protection, Bureau of Wastewater Treatment, Industrial Pretreatment Program.
- NYCDEP, 2000b. Industrial Wastewater Discharge Permit. Issued to: Chromium Plating and Polishing Corporation. Permit No. 00-P47-1. February 25, 2000.
- NYCDEP, 2001. *2001 Annual Progress Report, January 1, 2001 to December 31, 2001*. New York City Department of Environmental Protection, Bureau of Wastewater Treatment, Industrial Pretreatment Program.
- NYCDEP, 2002. *2002 Annual Progress Report, January 1, 2002 to December 31, 2002*. New York City Department of Environmental Protection, Bureau of Wastewater Treatment, Industrial Pretreatment Program.
- NYCDEP, 2003. Industrial Wastewater Discharge Permit. Issued to: Chromium Plating and Polishing Corporation. Permit No. 03-P47-1. December 19, 2003.
- NYCDEP, 2004. IPP Inspection and Permit Section Establishment Inspection Report Form. Chromium Plating and Polishing Corporation. June 16, 2004.
- NYCDEP, 2007. *Landside Modeling Report, Sewershed Characteristics and Model Calibration*. City-Wide Long Term CSO Control Planning Project. Newtown Creek WPCP Service Area. Draft. New York City Department of Environmental Protection, Bureau of Engineering Design and Construction. July 2007.

- NYSDEC (New York State Department of Environmental Conservation), 2011a. NYSDEC Spill Incidents Database. Accessed December 23, 2011.
Available from: <http://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=2>
- NYSDEC, 2011b. NYSDEC Permit Database. Accessed December 22, 2011.
Available from:
http://www.dec.ny.gov/cfmx/extapps/envapps/index.cfm?district_id=47705&county_swis_code=63&stimulus=0
- Sanborn (Sanborn Map Company), 1950. *Insurance Maps of the Borough of Queens, City of New York*. Volume 3: Sheet 11. Original 1915, revised 1950.
- Sherkin, J., 1967. Indenture to MRM Properties Corp. July 28, 1967.
- Soren and Simmons (Soren, J. and Simmons, D.L.), 1987. *Thickness and Hydrogeology of Aquifers and Confining Units Below the Upper Glacial Aquifer on Long Island, New York*. U.S. Geological Survey. Water-Resources Investigations Report 86-4175. Scale 1:125,000. 1987.
- Stablex-Reutter, Inc., 1980. Wastewater Sampling Laboratory Report, Test Report No. S-1256. Chromium Plating and Polishing. December 9, 1980.
- Visual Display, Inc., 2005. Letter to NYCDEP. May 26, 2005.

12 ATTACHMENTS

Figures

Figure 1 Site Vicinity Map: Chromium Plating and Polish

Tables

Table 1 Potential Areas of Concern and Transport Pathways Assessment

Supplemental Attachments

Attachments 1a and 1b Figure 2: Tabulation of Tanks and Equipment and Proposed Upgrades to Facility, April 27, 1990 (CPP 1990)

Attachment 2 Figure 3: Schematic of Site Circa 2004 (CPP [date unknown])

Attachment 3 Figure 4: Schematic of Site Circa 2005 (CPP ca. 2005)

Table 1
Potential Areas of Concern and Transport Pathways Assessment – Chromium Plating and Polish

Potential Areas of Concern	Media Impacted					COPCs															Potential Complete Pathway					
						TPH			VOCs			SVOCs	PAHs	Phthalates	Phenolics	Metals	PCBs	Herbicides and Pesticides	Dioxins/Furans							
						Gasoline-Range	Diesel – Range	Heavier – Range	Petroleum Related (e.g., BTEX)	VOCs	Chlorinated VOCs															
Description of Areas of Concern	Surface Soil	Subsurface Soil	Groundwater	Catch Basin Solids	Creek Sediment	Gasoline-Range	Diesel – Range	Heavier – Range	Petroleum Related (e.g., BTEX)	VOCs	Chlorinated VOCs	SVOCs	PAHs	Phthalates	Phenolics	Metals	PCBs	Herbicides and Pesticides	Dioxins/Furans	Overland Transport	Groundwater	Direct Discharge – Overwater	Direct Discharge – Storm/Wastewater	Discharge to Sewer/CSO	Bank Erosion	Air Releases
Spills	√	√	√	?	?	?	√	?	?	?	?	?	?	?	?	?	?	?	?	--	--	--	--	--	--	--
Wastewater Discharge	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	√	?	?	?	--	--	--	--	--	--	--
Chemical Storage Tanks	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	--	--	--	--	--	--	--
Petroleum Storage Tanks	?	?	?	?	?	√	√	√	√	√	√	√	√	?	?	?	?	?	?	--	--	--	--	--	--	--

Notes:

√ – COPCs are/were present in areas of concern having a current or historical pathway that is determined to be complete or potentially complete.

? – There is not enough information to determine if COPC is/was present in area of concern or if pathway is complete.

-- – Current or historical pathway has been investigated and shown to be not present or incomplete.

BTEX – benzene, toluene, ethylbenzene, and xylene

COPC – constituent of potential concern

CSO – combined sewer overflow

PAHs – polycyclic aromatic hydrocarbon

PCB – polychlorinated biphenyl

SVOC – semi-volatile organic compound

TPH – total petroleum hydrocarbon

VOC – volatile organic compound

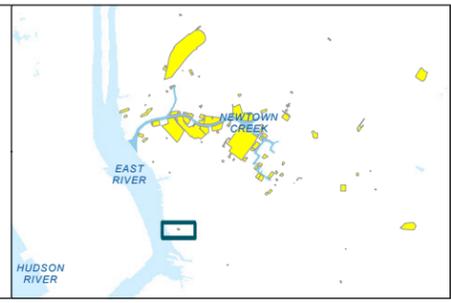
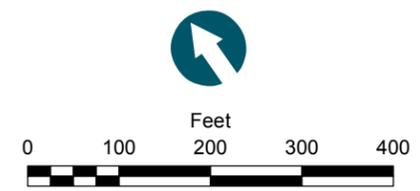
G:\Jobs\110782-01 NewtownCreek\Maps\RI RemedialInvestigation\Historic Data Research\Site Features Mapbook.mxd ckibinger 5/23/2012 5:34:25 PM



- USEPA Sample Locations (Surface and Subsurface)
- Shoreline (NYC Dept. of Information Technology, 2006)
- USGS Nat'l Elev. Dataset 5-foot Contours
- ▭ Selected Site Property Boundary
- ▭ Neighboring Site Property Boundary

- Outfall Class**
- Direct Discharge
 - General
 - Highway Drain
 - Major Stormwater Outfall
 - SPDES
 - Storm Drain

NOTES:
 1. Outfall Labeling: BB: Bowery Bay; NC(B/Q): Newtown Creek, Brooklyn/Queens; ST: Stormwater.
 2. Outfall locations are preliminary, compiled, estimated data based on New York City Department of Environmental Protection (NYCDEP) maps and tabulated data and other resources. Many outfall locations were taken from the New York City Shoreline Survey Program: Newtown Creek Water Pollution Control Plant Drainage Area, NYCDEP, March 31, 2003. Other locations were taken from an excerpt from a similar report from 2008 (the complete report was not included in files available for review). Finally, some outfall locations were inherited from previous Anchor QEA and Newtown Creek Project work. Latitudinal and longitudinal data provided in the 2003 and 2008 NYCDEP reports were rounded to the nearest second. This resulted in potential outfall location discrepancies of up to approximately 200 feet. All outfall locations are currently under field verification.
 3. Aerial Photos: New York State Division of Homeland Security and Emergency Services, 2010.
 4. Site Boundaries are based on New York City parcels data.
 5. Coarse topographic contours are derived from U.S. Geological Survey 10-meter data.



DRAFT

Figure 1
 Site Vicinity Map
 Draft Upland Site Summary: Chromium Plating and Polish
 Newtown Creek RI/FS

SUPPLEMENTAL ATTACHMENTS

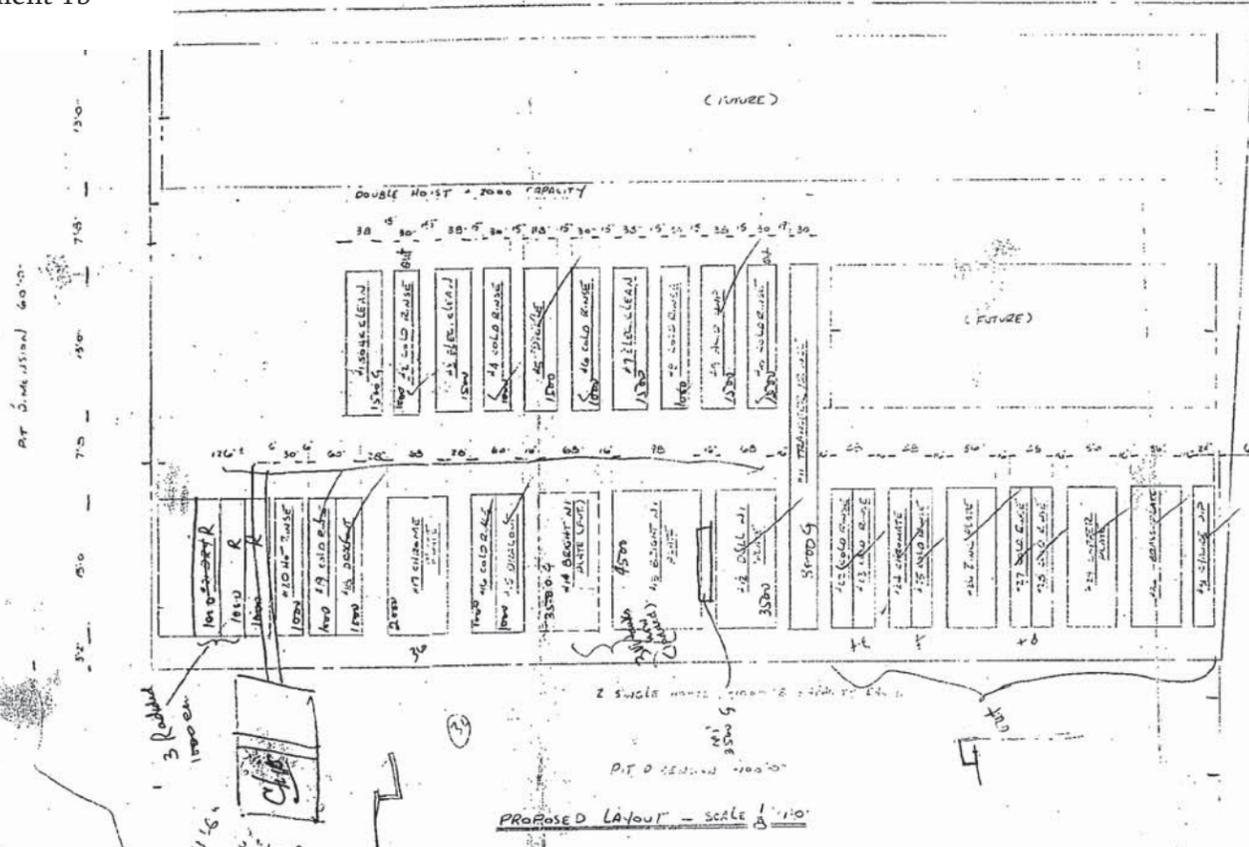
- TANK AND EQUIPMENT TABULATION -

NO	PROCESS	TANK SIZE	TANK MATERIAL	LIQ. MEDIUM	FLNR - EXTERIOR	TEMP °F	COIL	TEMP CONTROL	CONTROL VALVE	DRAIN	OVERFLOW	EXHAUST	HEAT EXCH.	D.C. REEFIER	MISC. EQUIPMENT
1	SOAK CLEAN	13'0" x 5'0" x 5'6"	1/4 HRS	NONE	PAINT	180°F	TWO 3/4" HRS PLATE COILS	2 SELF HEATING	---	2" COIL - H.I.	2" COIL - H.I.	BISO CPM	NONE	---	RECIRCULATING PUMP
2	ELECTRO-ETCH	13'0" x 5'0" x 5'6"	1/4 HRS	NONE	PAINT	180°F	TWO 3/4" HRS PLATE COILS	2 SELF HEATING	---	2" COIL - H.I.	2" COIL - H.I.	BISO CPM	NONE	5000 AMPS, 4V	---
3	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	PAINT	AMBIENT	---	---	---	2" COIL - H.I.	2" COIL - H.I.	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
4	ELECTRO-ETCH	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	180°F	---	1/2" SELF HEATING	---	2" FLANGE	NONE	BISO CPM	NONE	1000 AMPS, 4V	---
5	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PASTISOL	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
6	ELECTRO-ETCH	13'0" x 5'0" x 5'6"	1/4 HRS	NONE	PAINT	180°F	TWO 3/4" HRS PLATE COILS	2 SELF HEATING	---	2" COIL - H.I.	2" COIL - H.I.	BISO CPM	NONE	5000 AMPS, 4V	---
7	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	PAINT	AMBIENT	---	---	---	2" COIL - H.I.	2" COIL - H.I.	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
8	ELECTRO-ETCH	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	---	---	---
9	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PASTISOL	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
10	DULL JERKEL PLATE	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	185°F	TWO 1" DIAMETER TUB. COILS	SARCO ELEC-11 50" x 250"	2 1/2" SELF HEATING VALVE	NONE	NONE	---	1" W.S. PIPE DISTRIBUTION	5000 AMPS, 12V	---
11	BRIGHT JERKEL PLATE	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	185°F	TWO 1" DIAMETER TUB. COILS	SARCO ELEC-11 50" x 250"	2 1/2" SELF HEATING VALVE	NONE	NONE	---	1" W.S. PIPE DISTRIBUTION	5000 AMPS, 12V	WATER SOLUTION FILTER UNIT
12	BRIGHT JERKEL PLATE UNIT	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	185°F	TWO 1" DIAMETER TUB. COILS	SARCO ELEC-11 50" x 250"	2 1/2" SELF HEATING VALVE	NONE	NONE	---	1" W.S. PIPE DISTRIBUTION	5000 AMPS, 12V	---
13	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	FLATIRON	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
14	BRASS PLATE	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	95°F	ONE 1 1/2" HRS PLATE COIL	SARCO ELEC-11 50" x 250"	1" SELF HEATING VALVE	NONE	NONE	BISO CPM	---	1000 AMPS, 4V	---
15	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
16	CHROME PLATE	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	185°F	TWO 1" DIAMETER TUB. COILS	SARCO ELEC-11 50" x 250"	2 1/2" SELF HEATING VALVE	NONE	NONE	BISO CPM	---	1000 AMPS, 4V	---
17	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
18	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
19	HOT WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	PAINT	200°F	TWO 1" DIAMETER TUB. COILS	2 SELF HEATING	---	2" COIL - S.S.	2" COIL - S.S.	---	---	---	---
20	LACQUER DIP	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	NONE	95°F	ONE 1 1/2" HRS PLATE COIL	2 SELF HEATING	---	2" COIL - S.S.	NONE	---	---	---	---
21	DRYER	13'0" x 5'0" x 5'6"	1/4 HRS	NONE	PAINT	100°F	SEE SPECS	SEE SPECS	SEE SPECS	2" COIL - H.I.	NONE	---	---	---	SEE SPECIFICATIONS
22	ZINC PLATE	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	15°F	TWO 1 1/2" HRS PLATE COILS	SARCO ELEC-11 50" x 250"	1 1/2" SELF HEATING VALVE	NONE	NONE	BISO CPM	---	5000 AMPS, 4V	---
23	ZINC PLATE (INT.)	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	75°F	TWO 1 1/2" HRS PLATE COILS	SARCO ELEC-11 50" x 250"	1 1/2" SELF HEATING VALVE	NONE	NONE	BISO CPM	---	5000 AMPS, 4V	---
24	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
25	CHROMATE DIP	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	NONE	AMBIENT	---	---	---	2" COIL - S.S.	NONE	---	---	---	---
26	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
27	COPPER PLATE (INT.)	13'0" x 5'0" x 5'6"	1/4 HRS	KAROSSEL	PAINT	100°F	ONE 1 1/2" HRS PLATE COIL	SARCO ELEC-11 50" x 250"	1 1/2" SELF HEATING VALVE	NONE	NONE	BISO CPM	---	1000 AMPS, 4V	---
28	COLD WATER RINSE (INT.)	13'0" x 4'8" x 5'6"	1/4 HRS	PASTISOL	PAINT	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
29	HOT WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	NONE	200°F	TWO 1" DIAMETER TUB. COILS	2 SELF HEATING	---	2" COIL - S.S.	2" COIL - S.S.	---	---	---	---
30	WATER	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	PAINT	200°F	SEE SPECS	SEE SPECS	SEE SPECS	2" COIL - H.I.	NONE	---	---	---	SEE SPECIFICATIONS
31	WASTE TREAT - CHROME	13'0" x 5'0" x 5'6"	1/4 HRS	PASTISOL	NONE	AMBIENT	---	---	---	2" FLANGE	2" FLANGE	---	---	---	ADDED PFC GRADE RECIRCULATING PUMP
32	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	PAINT	AMBIENT	---	---	---	2" COIL - H.I.	2" COIL - H.I.	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER
33	BUFFING COMP. DRUM	13'0" x 5'0" x 5'6"	1/4 HRS	NONE	PAINT	180°F	TWO 3/4" HRS PLATE COILS	2 SELF HEATING	---	2" COIL - H.I.	2" COIL - H.I.	BISO CPM	---	---	---
34	COLD WATER RINSE	13'0" x 4'8" x 5'6"	1/4 HRS	NONE	PAINT	AMBIENT	---	---	---	2" COIL - H.I.	2" COIL - H.I.	---	1" W.S. PIPE DISTRIBUTION	---	1" W.S. WATER SPRAY HEADER

* DENOTES FUTURE PLANTS

TANK & EQUIPMENT TABULATION
 AUTOMATED PLATING FACILITY
 CHROMIUM PLATING & POLISHING
 870 WYTHE AVE
 DALLAS, TEXAS 75211

REV. 1 - 3/11/07



TANK TABULATION

NO	PROCESS	LENGTH	MATL	LINING	NO	PROCESS	LENGTH	MATL	LINING
1	SOAK CLEAN	30	18" WRS	NONE	17	CHROME PLATE	60	18" WRS	FIBERGLASS
2	COLD RINSE	30		NONE	18	DRAUGHT	30		FIBERGLASS
3	ELECTRO CLEAN	30		NONE	19	COLD RINSE	30		FIBERGLASS
4	COLD RINSE	30		NONE	20	HOT RINSE	30	18" WRS	NONE
5	ACID PICKLE	30		KARBONAL	21	DRY	120	18" WRS	NONE
6	COLD RINSE	30		FIBERGLASS	22	COLD RINSE	24	18" WRS	FIBERGLASS
7	ELECTRO CLEAN	30		NONE	23	COLD RINSE	24		FIBERGLASS
8	COLD RINSE	30		NONE	24	CHROMATE	24		FIBERGLASS
9	ACID DIP	30		KARBONAL	25	COLD RINSE	24		NONE
10	COLD RINSE	30		FIBERGLASS	26	ZINC PLATE	50		NONE
11	TRANSFER/RINSE	30		FIBERGLASS	27	COLD RINSE	24		NONE
12	DULL NICKEL PLATE	60		KARBONAL	28	COLD RINSE	24		NONE
13	BRIGHT NICKEL PLATE	70		KARBONAL	29	COPPER PLATE	50		NONE
14	BRIGHT NICKEL PLATE (ZINC)	60		KARBONAL	30	BRASS PLATE	50		NONE
15	DRAUGHT	30		FIBERGLASS	31	CYANIDE DIP	24		NONE
16	COLD RINSE	30		FIBERGLASS	32				

* ALL TANKS 13'0" LONG & 5'6" DEEP
TRANSFER TANK 33'0" LONG

NOTE: PLASTIC LINING MAY BE USED IN LIEU OF FIBERGLASS

TANK PROGRAMS

NO	FINISHING CYCLES	PRODUCTION - BARS/HR
1	BRIGHT NICKEL / CHROME (includes #14)	24 BRIGHT NICKEL
2	BRIGHT NICKEL / CHROME & DULL NICKEL / CHROME	15 BRIGHT NI - 9 DULL NI
3	BRIGHT NICKEL / CHROME & COPPER	15 NICKEL - 6 COPPER
4	BRIGHT NICKEL / CHROME & BRASS	15 NICKEL - 6 BRASS
5	BRIGHT NICKEL / CHROME & ZINC	15 NICKEL - 6 ZINC

COMMON CLEANING CYCLE

NO	PROCESS	TIME #
1	SOAK CLEAN	150
2	COLD RINSE	5
3	ELECTRO CLEAN	150
4	COLD RINSE	5
5	ACID PICKLE	150
6	COLD RINSE	5
7	ELECTRO CLEAN	150
8	COLD RINSE	5
9	ACID DIP	150
10	COLD RINSE	5

* TIME IS IN SECONDS

BRIGHT NICKEL / CHROME

NO	PROCESS	TIME #
13	BRIGHT NICKEL	750
15	DRAUGHT	5
16	COLD RINSE	10
17	CHROME PLATE	480
18	DRAUGHT	5
19	COLD RINSE	10
21	HOT RINSE	20
21	DRY	600

DULL NICKEL / CHROME

NO	PROCESS	TIME #
12	DULL NICKEL PLATE	750
15	DRAUGHT	5
16	COLD RINSE	10
17	CHROME PLATE	480
18	DRAUGHT	5
19	COLD RINSE	10
20	HOT RINSE	20
21	DRY	600

BRASS PLATE

NO	PROCESS	TIME #
31	CYANIDE DIP	10
29	BRASS PLATE	1100
28	COLD RINSE	10
27	COLD RINSE	10
11	TRANSFER RINSE	5
20	HOT RINSE	20
21	DRY	600

COPPER PLATE

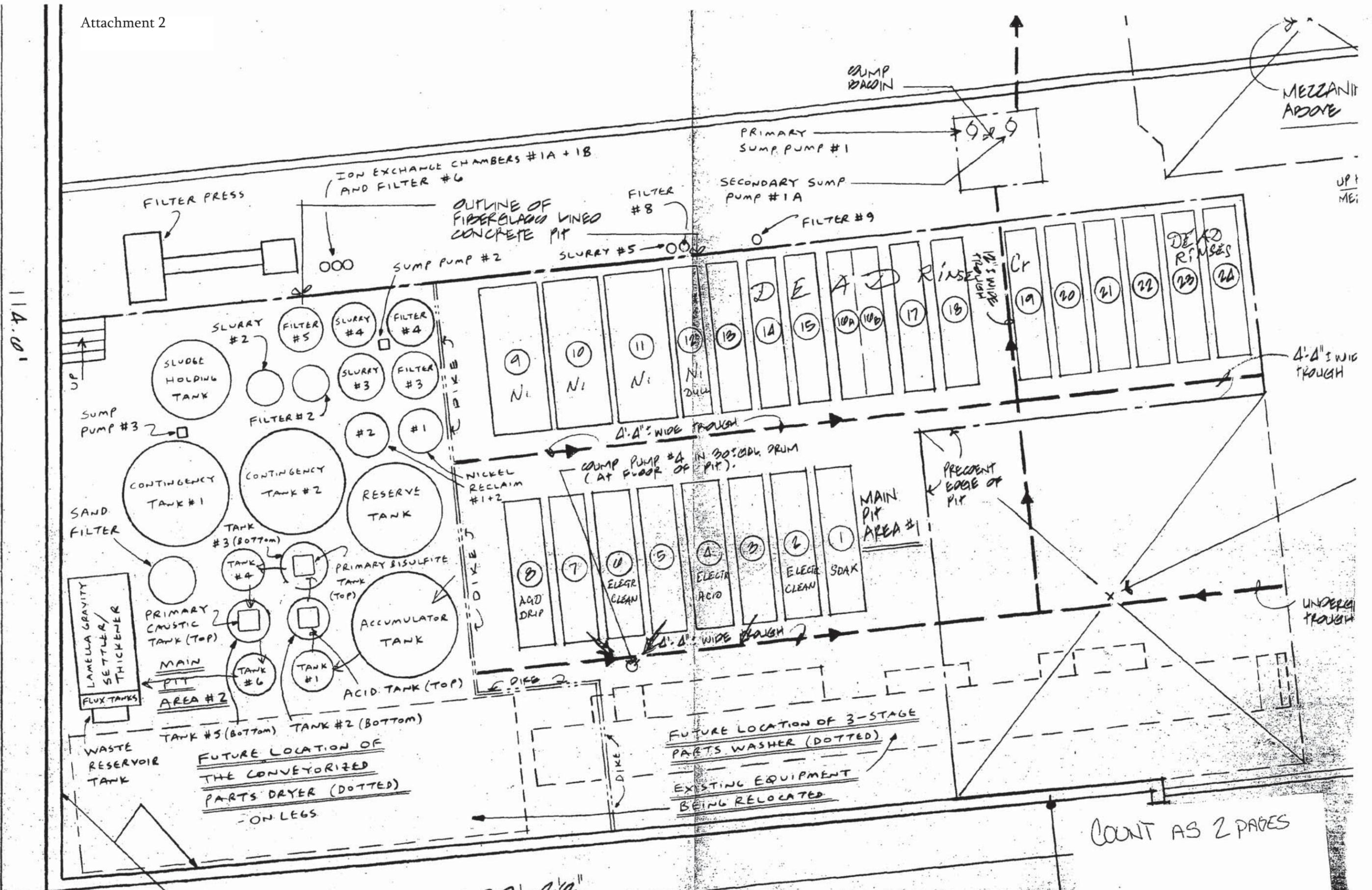
NO	PROCESS	TIME #
31	CYANIDE	10
29	COPPER PLATE	1200
28	COLD RINSE	10
27	COLD RINSE	10
11	TRANSFER RINSE	5
20	HOT RINSE	20
21	DRY	600

ZINC PLATE

NO	PROCESS	TIME #
31	CYANIDE DIP	10
26	ZINC PLATE	1100
25	COLD RINSE	10
24	CHROMATE DIP	10
23	COLD RINSE	10
22	COLD RINSE	10
11	TRANSFER RINSE	5
20	HOT RINSE	20
21	DRY	600

CHROMIUM PLATING & POLISHING CORP
BRADLEY, NEW YORK

REVISION #1 27 SEPT '70



114.01

COUNT AS 2 PAGES

100'-2 1/2"

